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09/710,605	11/10/2000	Kelly Robert McCaw	PALM-3302.US.P	5071

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EXAMINER

LE, MIRANDA

ART UNIT	PAPER NUMBER
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2177

DATE MAILED: 08/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/710,605

Applicant(s)

MCCAW, KELLY ROBERT

Examiner

Miranda Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 27 May 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This communication is responsive to Amendment A, filed 05/27/2003.
2. Claims 1-30 are pending in this application. Claims 1, 11, 21 are independent claims. In the Amendment A, claims 1, 11, 21 have been amended, no claims have been added or cancelled. This action is made Final.

Drawings

3. The proposed drawing correction and/or the proposed substitute sheet of drawing, filed on 05/27/03 has been approved.

The drawings filed on 11/10/2000, however, are **not approved** by the Draftsperson under 37 CFR 1.84 or 1.152 for the reasons submitted in Form PTO 948.

A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1-7, 11-17, 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boothby et al. (US Patent No. 5,943,676), in view of Gehani et al. (US Patent No. 5,765,171).

As to claims 1, 11, 21, Boothby teaches:

“a) designating a first database as a source database and a second database as a target database” at col. 2, lines 34-63, col. 6, lines 17-29, col. 7, lines 29-30;

“b) determining a state of a first modification flag of a first data record in said source database” at col. 21, lines 9-58;

“c) provided that said first modification flag is set, propagating said first data record to said target database” at col. 21, lines 9-58;

In step “d), Boothby teaches “provided that said first modification flag is not set” as described above.

Boothby does not teach the step “comparing a first modification count of said first data record with a second modification count of a corresponding data record in said target database, said first and second modification counts each being a value indicating how many times said first data record and said corresponding data record has been modified respectively”. However, Gehani teaches this limitation at col. 3, lines 10-24, col. 5, line 63 to col. 6, line 54, col. 7, lines 24-40;

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Boothby with the teachings of Gehani to include step (d) in order to provide a database version vector that keeps track the total number of updates that

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were applied to any of the x data items in its respective database replica and on which of the n servers each update was originally performed.

Boothby does not teach “e) provided that said first modification count has a higher value than said second modification count, updating said corresponding data record according to said first data record, wherein said steps a) through e) can be completed without comparing raw data of said first data record and said corresponding data record”. However, Gehani teaches this limitation at col. 6, lines 31-54, col. 7, lines 24-40, col. 7, lines 48-60.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Boothby with the teachings of Gehani to include step (e) in order to provide a protocol that determines whether replication is necessary between two replicas without incurring overhead associated with examining all data items in either the source and/or recipient database replicas.

As per claims 2, 12, 22, Gehani teaches “the step f) of incrementing said second modification count to said higher value of said first modification count” at col. 5, lines 1-23.

As per claims 3, 13, 23, Boothby teaches “steps a) through f) are repeated until all of said data records in said source database have been processed” at col. 9, lines 49-61.

As per claims 4, 14, 24, Boothby teaches “g) redesignating said second database as said source database and said first database as said target database” at col. 10, line 65 to col. 11, line 30;

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“h) performing said steps a) through f) repeatedly until all of said data records in said source database have been processed” at col. 9, lines 49-61.

As per claims 5, 15, 25, Boothby teaches “step c) comprises the steps of: updating said corresponding data record in said target database according to said first data record in said source database, provided that said first modification flag is set to indicate that said first data record has been modified in said source database and that said corresponding data record exists in said target database” at col. 11, lines 13-30; and “clearing said first modification flag” at col. 21, lines 9-58;

As per claims 6, 16, 26, Boothby teaches “step c) comprises the steps of: creating a new data record in said target database according to said first data record in said source database, provided that said first modification flag is set to indicate that said first data record is new in said source database and that said corresponding data record does not exist in said target database” at col. 16, lines 22-30, col. 21, lines 27-41, col. 18, lines 31-51; and clearing said first modification flag” at col. 21, lines 27-35.

As per claims 7, 17, 27, Boothby teaches “step c) comprises the step of marking said corresponding data record as deleted in said target database, provided that said first modification flag is set to indicate that said first data record has been deleted from said source database and that said corresponding data record exists and is not already marked as deleted in said target database” at col. 7, lines 39-61, col. 21, line 27 to col. 22, line 2.

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6. Claims 8, 18, 28, are rejected under 35 U.S.C. 103(a) as being unpatentable over Boothby et al. (US Patent No. 5,943,676), as applied to claims above, in view of Gehani et al. (US Patent No. 5,765,171), and further in view of Boothby et al. (US Patent No. 5,648,990).

As per claims 8, 18, 28, Boothby does not teach “first database and said second database reside in different host systems”. However, Boothby teaches this limitation at col. 4, lines 19-31.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to include “first database and said second database reside in different host systems” in order to make it possible to synchronize databases of radically different design, operating on different computer platforms.

7. Claims 9, 10, 19, 20, 29, 30, are rejected under 35 U.S.C. 103(a) as being unpatentable over Boothby et al. (US Patent No. 5,943,676), as applied to claims above, in view of Gehani et al. (US Patent No. 5,765,171), and further in view of Taivalsaari et al. (US Patent No. 6,366,898).

As per claims 9, 19, 29, Boothby does not explicitly teach “first database resides in a personal digital assistant (PDA)”. However, Taivalsaari teaches this limitation at col. 2, lines 14-29.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Boothby with the teachings of Taivalsaari to include in

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order to provide a method of creating and periodically loading a database of classfile on a non traditional computer device, such as a PDA.

As per claims 10, 20, 30, Boothby does not teach “second database resides in a computer system to which a personal digital assistant (PDA) can be coupled via a cradle device”.

However, Taivalaari teaches this limitation at col. 6, lines 30-53.

Thus, it would have been obvious to one ordinarily skilled in the art at the time of the invention to combine the teachings of Boothby with the teachings of Taivalaari to include “second database resides in a computer system to which a personal digital assistant (PDA) can be coupled via a cradle device” in order to provide a method of creating and periodically loading a database of classfile on a non traditional computer device, such as a PDA, cellular telephone,..., or other embedded device.

Response to Arguments

8. Applicant's arguments filed 03/10/2003 have been fully considered but they are not persuasive.

Applicant argues that:

- a) Boothby's reference does not teach/suggest step “a”.
- b) Boothby's reference does not teach/suggest step “b”.
- c) Boothby's reference does not teach/suggest step “c”.
- d) Gehani's reference does not teach/suggest step “d” and/or “e”, respectively.

The Examiner respectfully disagrees for the following reasons:

Per a), Boothby teaches a computer implemented method of synchronizing at least a first database and a second database, wherein the A_Database and the B_Database are being synchronized conversely (or “redesignating” as stated in claim 4) in accordance with the user’s preferences at col. 2, lines 53-54, col. 6, lines 17-29, col. 7, lines 29-30, see Fig. 1.

Boothby is silent but understood that in order to perform a synchronization process of the two databses, the A_Database¹³ should be designated as a source database, and the B_Database¹⁴ should be designated as a target database, or vice versa.

Per b), Boothby teaches “determining a state (i.e. additions, changes, deletions in a database) of a first modification flag (i.e. a Boolean flag that is set or clear) of a first data record (i.e. one Dirty bit a record) in said source database” (i.e. “some databases” can either be the source one or the target one depending on user’s selection) at col. 21, lines 9-58.

Per c), Boothby teaches “provided that said first modification flag is set (i.e. one Dirty bit flag indicating whether data record has been changed, added and deleted), propagating said first data record to said target database” (i.e. for the purpose of faster synchronization process, only those records which have been modified need to be loaded from the database) at col. 21, lines 9-58.

Per d), Boothby teaches “provided that said first modification flag is not set” as discussed in b) and c). Boothby does not teach a modification count.

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However, Gehani teaches “comparing (i.e. if $DBVV_{\theta}$ and $DBVV_r$ are not identical, that is if the count values of corresponding entries in both $DBVV_{\theta}$ and $DBVV_r$ are not equal) a first modification count of said first data record (i.e. source server with its database version vector $DBVV_{\theta}$) with a second modification count of a corresponding data record in said target database (i.e. recipient server with its database version vector $DBVV_r$), said first and second modification counts each being a value indicating how many times said first data record and said corresponding data record has been modified respectively (i.e. COUNT is an integer called the update count which indicates the number of updates, ... the server (source or recipient) updates the COUNT value in the entry corresponding to itself)” at col. 3, lines 10-24, col. 5, line 63 to col. 6, line 54, col. 7, lines 24-40, col. 8, line 20 to col. 9, line 8.

Gehani teaches “provided that said first modification count has a higher value than said second modification count, updating said corresponding data record according to said first data record” at col. 6, lines 31-54, col. 8, lines 20-58, “wherein said steps a) through e) can be completed without comparing raw data of said first data record and said corresponding data record” (i.e. by comparing $DBVV_{\theta}$ and $DBVV_r$, the recipient server can quickly determine whether updates are required without having to analyze each and every single data item in the database) at col. 7, lines 24-40, col. 7, lines 48-60.

Therefore, Boothby and Gehani do disclose a fast synchronizing method as recited in Applicant's claims 1, 11, 21. The claim language as presented is still read on by the Boothby and Gehani references at the cited paragraph in the claim rejections. Arguments as raised are moot since all claim limitations relevant to this issue have been addressed accordingly.

Furthermore, in response to Applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, Boothby teaches a Fast Synchronization Database including the one Dirty bit mechanism, which is a modification flag to keep track of additions, changes and deletions in a database (col. 21, lines 18-35). To speed up the synchronization process, the propagating performs only when the records have been modified, based on the Dirty bit that is set or cleared (col. 21, lines 27-54).

Similarly, Gehani teaches a synchronizing method including a modification count $COUNT_i$ that corresponds to a particular data record SID_i (col. 7, lines 24-40), the update count indicates the number of updates originating from the server contained in SID (col. 7, lines 27-32). To quickly determine whether updates are required without having to analyze each and every single data item in the database, the count values of corresponding entries in both $DBVV_\theta$ and $DBVV_r$ are being compared (col. 7, lines 41-60).

Since both Boothby and Gehani teach the same field as synchronization of data record in the databases, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of a modification flag, as taught by Boothby, with the

teachings of a modification count, as taught by Gehani because it would provide an optimized database technique to enable faster data synchronization.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (703) 305-3203. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene, can be reached on (703) 305-9790. The fax number to this Art Unit is (703) 746-7238.

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Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.



Miranda Le
July 28, 2003



GRETA ROBINSON
PRIMARY EXAMINER